<u>IN THE CLAIMS</u>:

Please amend Claims 1, 4, 20, 23, and 39 as follows.

1. (Currently Amended) A simulator apparatus with which an operator plays a simulation in mixed reality space including a virtual space and real space in which a real object(s) is placed, said simulator comprising:

a viewpoint detection unit adapted to detect the position/orientation of a viewpoint of the operator;

an inputting unit adapted to input a real space image corresponding to the position/orientation of the viewpoint of the operator;

a geometric information acquisition unit adapted to acquire geometric information of the real object(s) placed in the real space;

a rule memory adapted to store rules for controlling the action <u>patterns</u> of virtual object(s);

<u>a status memory adapted to store a simulation progress status;</u>

a computation unit adapted to determine the next action <u>pattern</u> of the virtual object(s) <u>as if a virtual object had its own will</u> ~~by referring to said rule memory based on a relation among the position/orientation of the viewpoint of the operator, position(s) of the virtual object(s) and the geometric information of the real object(s)~~ <u>based on a command input by the operator, the simulation progress status, the rules and the geometric information of the real object(s)</u>;

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a virtual space generation unit adapted to generate a virtual space image on the basis of ~~the~~ a next position/orientation of the virtual object(s) ~~after~~ according to the determined action pattern and the position/orientation of the viewpoint of the operator; and

a mixed reality image generation unit adapted to generate a mixed reality space image by superimposing or overlaying the virtual space image on the real space image, wherein the next position/orientation of the virtual object(s) is determined based on a location relationship among the position/orientation of the viewpoint of the operator, position(s) of the virtual object(s) and the geometric information of the real object(s).

2. (Previously Presented) The apparatus according to claim 1, wherein said inputting unit captures real space images of said operator's view of the real space,

and the apparatus further comprises a video see-through type display that the operator wears wherein the mixed reality images are displayed.

3. (Previously Presented) The apparatus according to claim 1, further comprising an optical see-through type display that the operator wears wherein said virtual space image is displayed.

4. (Currently Amended) The apparatus according to claim 1, further comprising:

a status detector that detects a status of the operator,

wherein said computation unit also determines a next action pattern of the virtual object in accordance with the status of the operator. ~~rule stored in said rule memory and in~~

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correspondence with the position/orientation of the real object and/or the status of the operator, and computes a position/orientation of the virtual object after the determined action.

Claims 5-7 (Canceled)

8. (Previously Presented) The apparatus according to claim 1, wherein the real object(s) include other operators who operate said simulator apparatus, and the other operators share a single mixed reality space with the operator.

9. (Previously Presented) The apparatus according to claim 1, wherein the real object is an object which is fixed in position in the real space, and

said geometric information acquisition unit comprises:

a predetermined memory for pre-storing position information and shape information of the real object; and

a reading unit that reads out the position information and shape information of the real object from said predetermined memory as needed.

10. (Previously Presented) The apparatus according to claim 1, wherein the real object is an object which is movable but does not deform, and

said geometric information acquisition unit comprises:

a predetermined memory for pre-storing shape information of the real object;

a position/orientation sensor for detecting a position/orientation of the real object; and

a setting unit that sets a region the real object is expected to occupy in the mixed reality space in accordance with the detected position/orientation of the real object.

Claims 11-17 (Canceled)

18. (Previously Presented) The apparatus according to claim 1, wherein said viewpoint detection unit detects a position/orientation of the head of the operator, and said apparatus further comprises:

a detector that detects a position/orientation of a hand of the operator; and

a recognition unit adapted to recognize a relative position of the hand of the operator with respect to the head as a command on the basis of an output from said detector.

19. (Previously Presented) The apparatus according to claim 1, wherein said virtual space generation unit comprises:

an alignment unit that aligns the position/orientation of the real object to the position/orientation of the virtual object after movement;

a generation unit that generates an image of the virtual object after alignment in correspondence with an occlusion relationship; and

a head-mounted display device.

20. (Currently Amended) An image processing method for a simulator apparatus with which an operator plays a game in a mixed reality space in which a real object(s) is placed, comprising:

a viewpoint detection step for detecting the position/orientation of a viewpoint of the operator;

an inputting step for inputting a real space image corresponding to the position/orientation of the viewpoint of the operator;

a geometric information acquisition step for acquiring geometric information of the real object(s) placed in the real space;

a computation step for determining the next action pattern of virtual object(s) as if a virtual object had its own will by referring to rules for controlling the action of the virtual object(s)based on a relation among the position/orientation of the viewpoint of the operator, position(s) of the virtual object(s) and the geometric information of the real object(s) based on a command input by the operator, a simulation progress status stored in a status memory, rules stored in a rule memory for controlling the action patterns of the virtual object(s) and the geometric information of the real object(s);

a virtual space generation step for generating a virtual space image on the basis of the a next position/orientation of the virtual object(s) after according to the determined action pattern and the position/orientation of the viewpoint of the operator; and

a mixed reality image generation step for generating a mixed reality space image by superimposing or overlaying the virtual space image on the real space image,

wherein the next position/orientation of the virtual object(s) is determined based on a location relationship among the position/orientation of the viewpoint of the operator, position(s) of the virtual object(s) and the geometric information of the real object(s).

21. (Previously Presented) The method according to claim 20, wherein said inputting step captures real space images of said operator's view of the real space,

and the simulator apparatus comprises a video see-through type display that the operator wears wherein the mixed reality images are displayed.

22. (Previously Presented) The method according claim to 20, wherein the operator wears an optical see-through type display and the virtual space image is displayed on the display.

23. (Currently Amended) The method according to claim 20, further comprising:

a status detecting step for detecting a status of the operator,

wherein said computation step also determines a next action pattern of the virtual object in accordance with the status of the operator. rule stored in a rule memory and in correspondence with the position/orientation of the real object and/or the status of the operator, and computes a position/orientation of the virtual object after the determined action.

Claims 24-26 (Canceled)

27. (Previously Presented) The method according to claim 20, wherein the real object(s) include other operators who operate the simulator apparatus, and wherein the other operators share a single mixed reality space with the operator.

28. (Previously Presented) The method according to claim 20, wherein the real object is an object which is fixed in position in the real space, and

the geometric information acquisition step includes the steps of:

pre-storing position information and shape information of the real object in a predetermined memory; and

reading out the position information and shape information of the real object from the predetermined memory as needed.

29. (Previously Presented) The method according to claim 20, wherein the real object is an object which is movable but does not deform, and the geometric information acquisition step includes the steps of:

pre-storing shape information of the real object in a predetermined memory;

detecting a position/orientation of the real object by a position/orientation sensor; and

setting a region the real object is expected to occupy in the mixed reality space in accordance with the detected position/orientation of the real object.

Claims 30-36 (Canceled)

37. (Previously Presented) The method according to claim 20, wherein the viewpoint detection step includes the step of detecting a position/orientation of the head of the operator, and

said method further comprises:

a detection step of detecting a position/orientation of a hand of the operator; and

a step of recognizing a relative position of the hand of the operator with respect to the head as a command on the basis of an output in the detection step.

38. (Previously Presented) The method according to claim 20, wherein the virtual space generation step includes the steps of:

aligning the position/orientation of the real object to the position/orientation of the virtual object after movement; and

generating an image of the virtual object after alignment in correspondence with an occlusion relationship.

39. (Currently Amended) A storage medium which stores a program of an image processing method for a simulator apparatus with which an operator plays a simulation in a mixed reality space including a virtual space and real space in which a real object(s) is placed, comprising:

a viewpoint detection program step for detecting the position/orientation of a viewpoint of the operator;

an inputting program step for inputting a real space image corresponding to the position/orientation of the viewpoint of the operator;

a geometric information acquisition program step for acquiring geometric information of the real object(s) placed in the real space;

a computation program step for determining the next action pattern of virtual object(s) as if a virtual object had its own will ~~by referring to rules for controlling the action of the virtual object(s) based on a relation among the position/orientation of the viewpoint of the operator, position(s) of the virtual object(s) and the geometric information of the real object(s)~~ based on a command input by the operator, a simulation progress status stored in a status memory, rules stored in a rule memory for controlling the action patterns of the virtual object(s), and the geometric information of the real object(s);

a virtual space generation program step for generating a virtual space image on the basis of ~~the~~ a next position/orientation of the virtual object(s) ~~after~~ according to the action pattern and the position/orientation of the viewpoint of the operator; and

a mixed reality image generation program step for generating a mixed reality space image by superimposing or overlaying the virtual space image on the real space image,

wherein the next position/orientation of the virtual object(s) is determined based on a location relationship among the position/orientation of the viewpoint of the operator, position(s) of the virtual object(s) and the geometric information of the real object(s).